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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,290	08/30/2001	Charles Lin	HT01-001	6636

28112 7590 01/24/2005

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EXAMINER

OMETZ, DAVID LOUIS

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/942,290

Applicant(s)

LIN, CHARLES

Examiner

David L. Ometz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 and 6-9 is/are allowed.
- 6) ☒ Claim(s) 10-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 10, 16, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Crue et al (US Pat Pub 2004/0061973).

As per claim 10, Crue et al shows a read-write head for a magnetic disk, comprising: a read head 50, having inner and outer edges, inherently optimized for reading perpendicularly recorded data in a magnetic medium; the read head disposed to lie between upper and lower shielding layers 52/54, each shielding layer 52/54 having an edge that is coplanar with said read head outer edge (i.e. the edge facing the air bearing surface); a first spacer layer on said upper shielding layer (un-marked in figure 3); on said spacer layer a first magnetic layer 38, having an outer edge, that functions as a write pole for perpendicular magnetic recording; on said first magnetic layer 38 a second spacer layer (again un-marked but shown in figure 3)); on said second spacer layer, a thin film coil 44; on the second spacer layer and the thin film coil, a third spacer layer (again un-marked); on the third spacer layer a second magnetic layer 68 having an outer edge; said outer edges of the read head, the first magnetic layer, and the second magnetic layer all lying in a single plane; a cavity (filled by magnetic layer 40) that extends from the first magnetic layer 38, through the second and third spacer layers, to the second magnetic layer 68; the cavity being disposed so that said thin film coil lies between it and said single plane (i.e. ABS

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plane); and said cavity being filled with a third magnetic layer 40 that contacts both the first and second magnetic layers.

As per claim 16, the read-write head described in claim 10 wherein the second magnetic layer 68 has a thickness between about 1 and 3 microns (see paragraph 44).

As per claim 18, the read-write head described in claim 10 wherein the second magnetic layer 68 is selected from the group consisting of NiFe, CoNiFe, CoFeB, CoNiV, and CoNiMo (see paragraph 43).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11-15, 17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crue et al. Crue et al shows a vertical recording head with a shielded MR read head wherein the MR read head is shielded by two separate shields independent from the write head portion as noted, *supra*. However, Crue et al does not show wherein the shielding layers are selected from the group consisting of NiFe; wherein the first spacer layer has a thickness between about 1.5 and 4 microns; wherein the first magnetic layer has a thickness between about 1 and 3 microns; wherein the second and third spacer layers have a thickness between about 0.5 and 3 microns; and wherein the first and third magnetic layers are selected from the group consisting of NiFe, CoNiFe, CoFeB, CoNiV, and CoNiMo.

With regard to the shielding layers, first, and third magnetic layers being NiFe, the examiner takes Official notice that the use of NiFe shield and pole layers to shield MR read

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heads and to write onto magnetic media is old and well known in the art of magnetic sensors.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use NiFe as the shield and pole material because of its ease of formation and high saturation properties which allow effective shielding to the MR read head from detrimental stray magnetic fields and large magnetic fields in the write pole which permit effective writing of "1s" and "0s" to high coercive media. It is noted by the examiner that because applicant has not seasonably traversed the Official Notice for the use of NiFe above, the subject matter of the Official Notice is now taken as admitted prior art.

With regard to the claimed thicknesses for the spacers and first magnetic layer, although Crue et al is silent as to the particular thicknesses of these layers, the scale used for the formation of the head is on the micron level as evidenced by the second pole being about 2 microns. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the head with such thicknesses for the layers as this is akin to optimizing the values of a result effective variable (in this case the thicknesses effect the overall height of the sensor, the degree of insulation between magnetic layers, and the effectiveness of the return pole to absorb flux from the underlayer of the magnetic media). Therefore, determining the optimal value of a result effective variable would have been obvious and ordinarily within the skill of the art. **In re Boesch**, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980).

5. Claims 1-4, 6-9 are allowed.

6. Applicant's arguments filed 9/29/04 have been fully considered but they are not persuasive. It is noted by the examiner that the assertions regarding the Yano et al reference are moot in view of the allowance of claims 1-4, 6-9.

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Applicant asserts with regard to the Crue reference that Crue does not teach where the return pole is on the far side of the coil relative to the upper pole. However, the examiner maintains that independent claim 10 only sets forth broadly a first magnetic layer that functions as a write pole and a second magnetic layer. As noted in the previous Office action, Crue shows in figure 3 a first magnetic layer 38 acting as a write pole (i.e. during writing, pole 38 is an integral part of the magnetic circuit permitting writing to the magnetic media) and a second magnetic layer 68. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant further asserts on page 7 that with regard to claim 12, routine experimentation would not have rendered obvious the claims thickness range of the spacer layer. It is the examiner's position that the Crue reference teaches that the scale used for the formation of the head is on the micron level as evidenced by the second pole being about 2 microns. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the head with such thicknesses for the layers as this is akin to optimizing the values of a result effective variable (in this case the thicknesses effect the overall height of the sensor, the degree of insulation between magnetic layers, and the effectiveness of the return pole to absorb flux from the underlayer of the magnetic media). Therefore, determining the optimal value of a result effective variable would have been obvious and ordinarily within the skill of the art. *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980).

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Ometz whose telephone number is (703) 308-1296. The examiner can normally be reached on M-W, 6:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (703) 305-6137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'David L. Ometz', with a long horizontal line extending to the right.

David L. Ometz
Primary Examiner
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DLO
1/24/05